

ICN Project #78120301  
Pottawattamie County  
I-29 Relocation, Council Bluffs, IA

The Iowa DOT will be expanding/relocating I-29 in Council Bluffs, Iowa in 2014. The Iowa Communications Network (ICN) has a fiber optic cable buried on the easterly side of I-29 that will be in conflict.

This bid package covers the relocation design and process to place a new ICN fiber optic cable along the westerly I-29 R/W on the north end of the project and along the new east R/W of I-29 on the south end of the project.

The U.S. Army Corps of Engineers (USACE) plays a major part in this ICN relocation. The USACE and the City of Council Bluffs govern Mosquito Creek within this relocation. Strict guidelines must be followed during the placement of the Horizontal Directional Drilling (HDD) under Mosquito Creek. Standards and specifications are included in this bid package.

The contractor performing the relocation work will be required to furnish and use a fluid pressure transmitter/receiver during the HDD within the Mosquito Creek Levee Critical Area, as shown on the ICN drawings. Information for the DigiTrak F5 fluid pressure transmitter is included in this bid package. This equipment was used by a utility contractor boring under the Mosquito Creek in 2013 per the City of Council Bluffs (Jeff Krist).

The contractor shall submit a formal "Emergency Action Plan" to the City of Council Bluffs prior to the start of the project. The contractor is also required to obtain a City of Council Bluffs permit (\$50.00) prior to the start of work. ICN has been informed by the City of Council Bluffs that the contractor must fill out, sign, and pay for the permit, not the utility owner.

Access to the project will be from Tank Farm Rd. and off of I-29. The contractor will be responsible to supply, use, and maintain all safety and traffic control throughout the duration of this ICN relocation project.

The new Iowa DOT R/W on the south end of the project will be staked by IDOT and Larry Klawitter w/ ICN. Larry Klawitter will assist the contractor with directional bore limits in the Mosquito Creek area.

The Iowa DOT bid letting for the I-29 project is April 15, 2014. The Iowa DOT has asked ICN to have their relocation completed by April 15, 2014 if at all possible. ICN will hold the contractor to that date, unless some unforeseen dilemma arises causing major delays. The contractor should schedule the directional boring to begin in the latter part of March 2014 in case problems do come up.

The contractor bids are to be received by the Iowa Communications Network (ICN) on February 6, 2014 at 2:00 pm.

**Minor Section 408  
Emergency Action Plan**

**Missouri River  
Council Bluffs Flood Protection  
Council Bluffs, IA  
Mosquito Creek Levee  
Unit 624 Section 3**

**Iowa Communications Network  
Directional Bore & Trenching  
For 2" HDPE Duct**

**Submitted By:  
Olsson Associates  
013-1995**

**Submittal Date:  
October 2013**

### **1.1 Project Information**

**Levee Unit Name:** Missouri River Council Bluffs Flood Protection  
Mosquito Creek Levee Unit 624 Section 3

**Local Sponsor:** Council Bluffs, Iowa

**Levee Stations:** 1051+65 to 1053+80

**Project Name:** Iowa Communications Network Directional Bore &  
Trenching For 2" HDPE Duct, Council Bluffs, Iowa

### **1.2 Project Description**

The Iowa Department of Transportation is proceeding with the reconstruction of the I-29 / I-80 East System Interchange (Segment 3) as a part of the Council Bluffs Interstate System. The work for Segment 3 involves the construction of new roadway embankments and bridge structures. Due to this work, Iowa Communications Network (ICN) is required to relocate fiber optic ducts.

The levees affected by this construction is the Mosquito Creek Agricultural Levee L-624, which was a part of the Council Bluffs Flood Protection System that was originally designed and constructed by the Omaha District of the U.S. Army Corps of Engineers (USACE) in the early 1950's.

A portion of the fiber relocation project will take place within the "critical area" of the levee, which is defined by the USACE as the area within 300 feet riverward and 500 feet landward of the levee. The work covered by this Emergency Action Plan addresses Horizontal Directional Drilling (HDD) for the fiber ducts and construction of bore pits at two locations, where the fiber ducts will be spliced together. The bore pits will be approximately 3' deep.

### **1.3 Construction Requirements**

The General Contractor shall prepare and follow an Emergency Action Plan (EAP) which will addresses the requirements presented in this document and the procedures for high water conditions during construction. The EAP shall include emergency contact information, including cell phone and pager numbers of the project manager, project superintendent and foreman. The numbers provided shall be monitored 24 hours a day, 7 days a week.

### **1.4 Emergency Contingency Plan:**

Work performed along the levee shall conform to USACE requirements and to the following emergency action plan:

#### **1.4.1 Daily Monitoring**

The water level in the Missouri River shall be monitored on a daily basis by the General Contractor and the Iowa DOT. The extended forecast of future river levels shall also be monitored.



#### **1.4.2 Monitoring Agencies**

Due to the location of this project and the availability of stream gauges, the river level shall be monitored through USGS and National Weather Service websites for River Gage - 06610000 Missouri River at Omaha, NE.

- [http://waterdata.usgs.gov/ne/nwis/uv/?site\\_no=06610000&](http://waterdata.usgs.gov/ne/nwis/uv/?site_no=06610000&)
- <http://www.riverwatch.noaa.gov/forecasts/OAXRDOAX.php>

#### **1.4.3 Ceasing Operation**

Construction operations will cease in the event the river levels are within 5 feet of the published flood stage of 29 feet (Elevation 974.4 feet). The 100-year flood elevation at this location is 981 feet. The 500-year flood elevation is 983.0 feet.

#### **1.4.4 Construction Equipment**

The General Contractor shall provide a list of all construction equipment that will be present throughout the duration of construction within the critical area. All equipment, construction materials and stockpiled soils will be removed in the event of high water and relocated to the landside of the levee during high water events.

#### **1.4.5 Emergency Action Plan**

To ensure that the contractor has adequate backfill material and equipment in place to perform emergency backfilling procedures, contractor shall formally submit an "Emergency Action Plan" including a list of equipment and materials that will be available and on site as well as operators and other crew members including emergency contact phone numbers, who are available on a 24 hour basis to perform the emergency backfill operations. The plan shall be submitted to the Engineer and City of Council Bluffs for review and approval.

#### **1.4.6 Emergency Backfilling.**

During excavation construction of the bore pits, if the river level reaches an elevation within 5 feet of the published flood stage of 29 feet (Elevation 974.4 feet), emergency backfilling shall be commenced. In addition, emergency backfilling shall commence if directed to do so by the US Army Corps of Engineers, The City of Council Bluffs or Iowa Communications Network.

All excavations shall be backfilled within the same day. Contractor shall leave excavated material on site and have equipment available on site to perform emergency backfilling operations during a flood period. During excavation construction of the bore pits, if the river level reaches an elevation within 5 feet of the published flood stage of 29 feet (Elevation 974.4 feet), contractor shall cease excavation and commence backfilling.

#### **1.4.7 Emergency Contacts**

##### **General Contractor**

(Provide emergency contact information prior to the start of construction. Contact information to be distributed to all parties listed in this EAP document.)

Company Name:

Address:

Superintendent Name:

Superintendent Cell:

##### **City of Council Bluffs**

Jeff Krist, P.E.  
City of Council Bluffs, Public Works Dept.  
290 Pearl Street  
Council Bluffs, Iowa 51503  
Phone: 712-328-4635 (office)  
Email: jkrist@councilbluffs-ia.gov

Pat Miller, Operations Manager  
Phone: 402-510-2700 (cell)

Chuck Pendegraf, Levee Superintendent  
Phone: 402-510-3675 (cell)

##### **Iowa Communications Network**

Larry Klawitter  
ICN – Outside Plant  
Phone: 515-725-4741  
Email: Larry.Klawitter@iowa.gov

##### **USACE – Omaha District.**

Chris Horihan, P.E.  
USACE – Readiness Branch  
1616 Capitol Avenue, Suite 9000  
Omaha, Nebraska 68102-4926  
Phone: 402-995-2700  
Email: Christopher.j.horihan@usace.army.mil



# DigiTrak® F5®

## Fluid Pressure Transmitter

The long-range DigiTrak® F5® Fluid Pressure Transmitter (Model FPT) provides downhole fluid pressure monitoring up to 250 psi (1725 kPa). The drilling fluid pressure is measured through sensor ports located on the front end cap. The sensor ports are small holes situated on either side of the index slot. The FPT, which comes in two dual-frequency configurations, provides all standard transmitter data, such as roll, pitch, and depth, in addition to the fluid pressure readings. All battery-powered DigiTrak® transmitters enter sleep mode after 15 minutes of inactivity.

### Housing Requirements

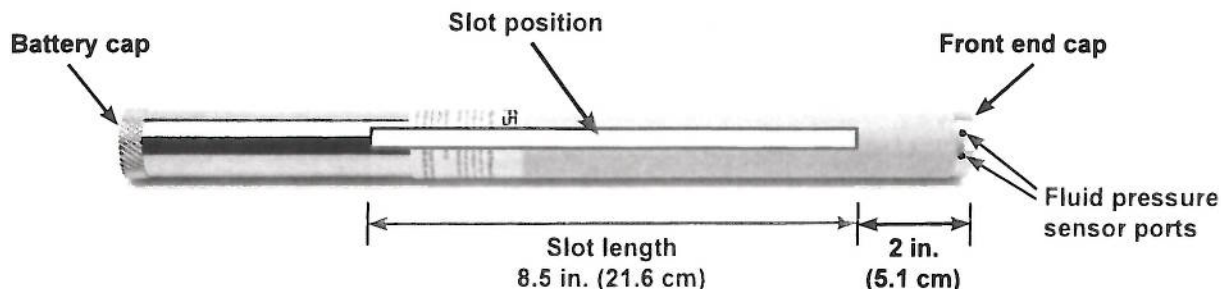
The DigiTrak® F5® Fluid Pressure Transmitter is compatible with existing drill housings that accommodate 15 in. (38.1 cm) DigiTrak® transmitters. The FPT requires a path for fluid to flow from the annulus around the housing to the four sensor ports in the front end cap; slots in the housing will satisfy this requirement. If the slots are epoxied, then a 0.125 in. (3 mm) diameter hole must be installed to allow fluid pressure to be measured by the FPT.

DCI's FPT transmitters require housings with at least three slots equally spaced around the circumference of the housing for optimal signal emission and maximum

### Transmitter Specifications

Model number.....	FPT
Part number and frequency	
F5Dp 19/12.....	19.2 or 12 kHz
F5Dp 12/1.3.....	12 or 1.3 kHz
Depth range.....	65 ft (19.8 m)
Pitch sensitivity.....	0.1%
Roll data.....	24-position clock
Pressure range.....	0–250 psi (0–1725 kPa)
Pressure resolution	
0–75 psi (0–517 kPa).....	±1 psi (7 kPa)
75–250 psi (517–1725 kPa).....	±5 psi (34 kPa)
Battery type and life	
2 C-cell alkaline.....	20 hr awake; 200 hr sleep
1 SuperCell™.....	70 hr awake; 400 hr sleep
2 SAFT LSH14.....	40 hr awake; 400 hr sleep
Maximum temperature.....	220°F (104°C)
Diameter.....	1.25 in. (3.175 cm)
Length.....	15 in. (38.1 cm)
Weight (without batteries).....	1.65 lb (748 g)

battery life. The slots must be at least 1/16 or 0.0625 in. (1.6 mm) wide. Slot position and length requirements are shown below; all slot length measurements should be taken from the inside of the housing.



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# DigiTrak® F5®

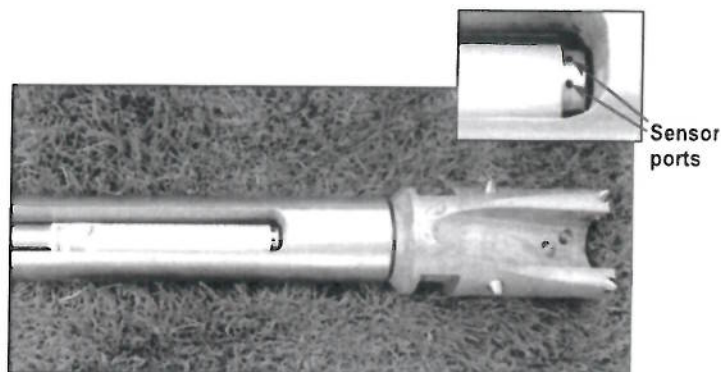
## Fluid Pressure Transmitter

The DigiTrak® F5® Fluid Pressure Transmitter (Model FPT) introduces DCI's newest transmitter feature for the HDD walkover locating industry—the real-time measurement and logging of downhole drilling fluid pressure. The FPT, which is unique to the industry, is used exclusively with the DigiTrak® F5® receiver and incorporates all of the transmitter functions of a DigiTrak® F5® dual-frequency transmitter, including depth, roll, and pitch readings. In addition, the transmitter provides instantaneous readings of the annular drilling fluid pressure at the drill head. Downhole pressure data provides the operator with valuable new information to react faster to potential drilling problems and take preventive actions that increase efficiency and reduce the risk of an expensive frac-out. The FPT incorporates DCI's latest mechanical and electronic design and is compatible with existing drill housings that accommodate DigiTrak® transmitters.

The primary advantages of the DigiTrak® F5® Fluid Pressure Transmitter include the following:

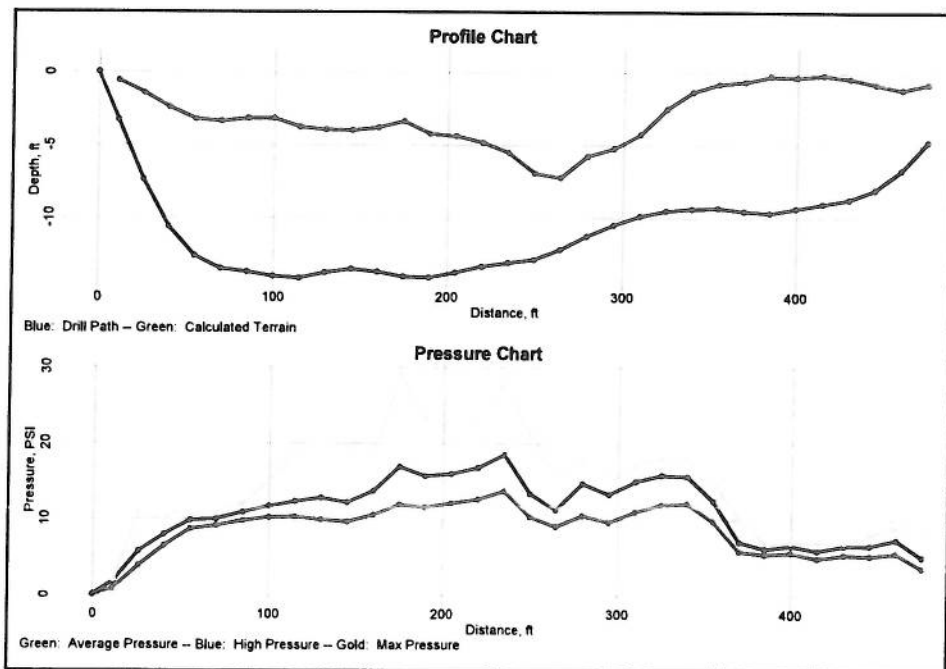
- Knowledge of downhole drilling fluid pressure can assist in preventing frac-outs and/or damage to surrounding structures.
- Real-time downhole drilling fluid pressure is continuously displayed on the F5® receiver and on the drill rig's remote display.

Bore Profile and  
Pressure Data  
Recorded Using FPT  
and Charted Using  
LWD™ Software



FPT in Housing with Closeup Showing Pressure Sensor Ports

- The fluid pressure data can indicate formation changes, which can help determine the appropriate formulation of drilling fluid for the conditions.
- Fluid pressure data can be monitored and saved on the F5® receiver and uploaded via Bluetooth to a PC for analysis, report creation, printing, and archiving using the DigiTrak® LWD™ (Log-While-Drilling) DataLog® software package.



**DCI**  
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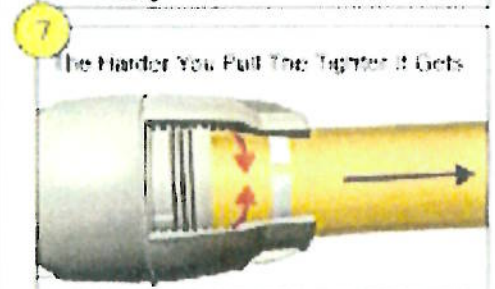
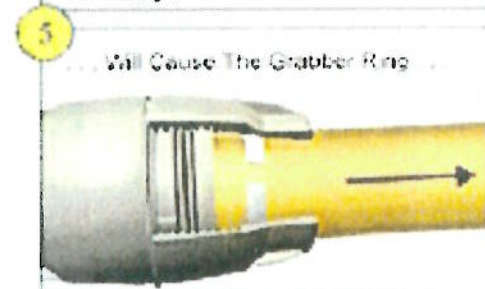
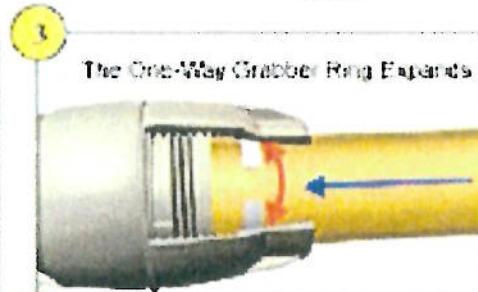
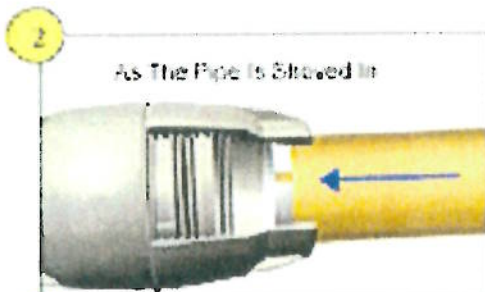
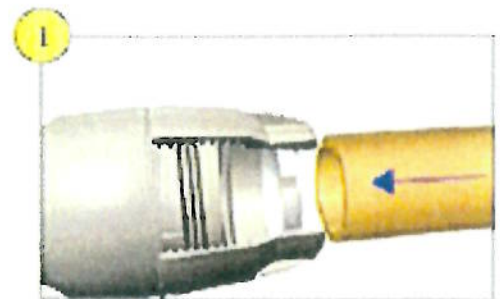
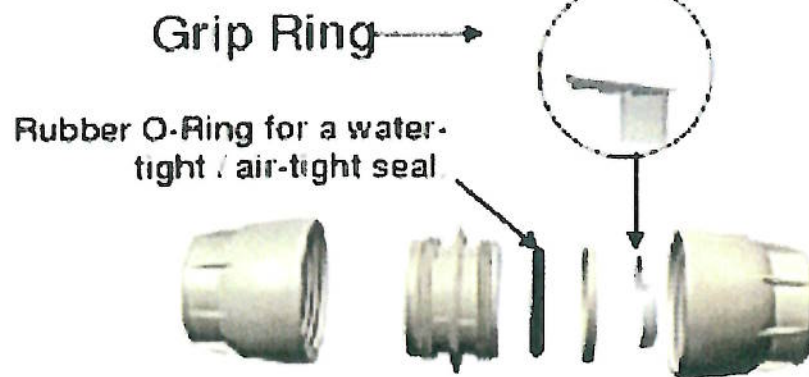
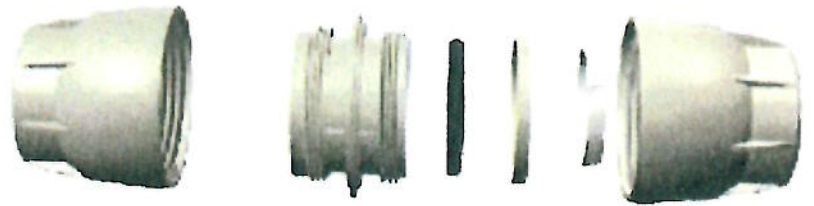


## COMFIT COUPLING

Fast. Easy Air-Tight Installation.

Transition to IPS size PVC, Steel and Fiberglass conduits. Designed in accordance with the special demands of the leading cable duct companies and

contractors. Excellent for blowing and pulling cable installation methods. Compact profile reduces difficulties traditionally incurred in the cable duct through the installing machinery and narrow trenches. Push-fit method ensures easy and simple assembly and disassembly.





## FIBER OPTIC DUCT PLUG

Fiber Optic Simplex plugs effectively seal conduits containing one cable. Originally designed for applications involving fiber optic cable placement in subduct, this product is ideal for sealing around coax or twisted pair cable in small diameter conduits.

- Water-tight and air-tight
- Simple installation around in-place cables
- Seals all types of inner duct
- Wide cable sealing range
- Installs and removes by hand
- Split design allows plugs to be retrofittable, removable, and reusable



# BORING LOG NO. B-2

Page 1 of 2

**PROJECT:** ICN Mosquito Creek  
Directional Bore

**CLIENT:** Iowa Communications Network (ICN)  
Des Moines, IA

**SITE:** I-29 at Mosquito Creek and South Omaha Bridge Rd  
Council Bluffs, IA

GRAPHIC LOG	LOCATION See Exhibit A-2	DEPTH (FL.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	LABORATORY TORVANE/HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS
	Approximate Surface Elev: 975 (FL.) +/-										LL-PL-PI
	DEPTH ELEVATION (FL.)										
	Agricultural topsoil at surface. <b>LEAN CLAY (CL)</b> , brown, stiff to very stiff				9		4000 (HP)		26	89	
					13		5500 (HP)		32	79	
	5.0 <b>LEAN TO FAT CLAY (CL/CH)</b> , dark gray, very stiff 970+/-	5			5		8000 (HP)		27	93	
	8.0 <b>FAT CLAY (CH)</b> , dark gray, stiff 967+/-	10			11		3000 (HP)		33	90	
	13.0 <b>FAT CLAY (CH)</b> , gray, stiff to medium stiff 962+/-	15			16		2500 (HP)	1700	38	82	
	18.0 <b>SILT (ML)</b> , dark gray, medium stiff to soft 957+/-	20			18		1500 (HP)		40	85	28-24-4
		25			18	1-1-1 N=2			46		

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:  
Hollow Stem Auger

See Exhibit A-3 for description of field procedures.  
See Appendix B for description of laboratory procedures and additional data (if any).  
See Appendix C for explanation of symbols and abbreviations.

Notes:

Abandonment Method:  
Borings backfilled with soil cuttings upon completion.

## WATER LEVEL OBSERVATIONS

20' while drilling

**Terracon**  
15080 A Circle  
Omaha, Nebraska

Boring Started: 1/15/2013

Boring Completed: 1/15/2013

Drill Rig: #96

Driller: S. Mather

Project No.: 05125118

Exhibit: A-5

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO LOG-DEPTH TO BOTTOM OF PAGE 05125118 LOGS.GPJ TERRACON2012.GDT 2/22/13



# BORING LOG NO. B-2

Page 2 of 2

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											LL-PL-PI
	Approximate Surface Elev: 975 (Fl.) +/-										
	DEPTH ELEVATION (Fl.)										
	<b>SILT (ML)</b> , dark gray, medium stiff to soft ( <i>continued</i> )										
	28.5 946.5+/-										
	<b>SILT WITH SAND (ML)</b> , dark gray, soft to stiff										
		30		X	18	1-1-1 N=2			40		
	clay layer at 33.5 to 35 feet										
		35		X	18	2-5-6 N=11			38		
	38.5 936.5+/-										
	<b>SILTY SAND (SM)</b> , dark gray, loose										
	40.0 935+/-										
	<b>Boring Terminated at 40 Feet</b>	40		X	10	6-3-3 N=6			36		
		45									
		50									

Stratification lines are approximate. In-situ, the transition may be gradual.

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See Exhibit A-3 for description of field procedures.  
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POTTAWATTAMIE CO.  
LEWIS TWP.  
T74N R43W



SPLICE  
MS1302B-A

36122	16112	16102
EOH	EOH	EOH
36036		
EOH		

APPROX. SEC. LINE

SEC.7

SEC.18

MATCH LINE 305+70 SEE PRINT 1302B-06C

MATCH LINE 260+60 SEE PRINT 1302B-04C

BRIDGE

300+18  
ICN MKR  
MOSQUITO CREEK

305+01 FC. COR. & P.I. RT.  
ICN MKR

304+41 P.I. LT. & END DUCT

304+13 BEG. FENCE

303+87 EDGE OF BRIDGE

302+76 PIER

301+70 PIER

301+59 EDGE OF WATER

300+25 HWY STA. 220

300+89 EDGE OF WATER

300+18 PIER

299+99 PIER

299+19 EDGE OF BRIDGE

298+57 END FENCE

298+40 HANDHOLE

297+14 CULVERT

296+84 FC. COR. & P.I. LT.

295+25 HWY STA. 225

294+10 FC. COR.

293+00 FC. COR. & P.I. LT.

289+66 END PVC

289+46 BEG. P.V.C

289+40 HWY STA. 230

286+84 FC. COR. & P.I. LT.

277+72 ICN MKR

277+30 P.I. RT.

273+70 END BORE

272+30 E. HWY

270+89 BEG. BORE

270+09 P.I. RT.

-440' EQUATION  
275+32 BK.  
=279+72 AH.

-94' EQUATION  
294+10 BK.  
=295+04 AH.

12 FIBER 4/.3db

# IOWA COMMUNICATIONS NETWORK

W-4 RAILROAD AVE. CAMP DODGE		JOHNSTON, IA 50131	
NO.	DATE	ISSUE	DATE
1	8-12-92	BID ISSUE	8-12-92
2	8-23-92	CONSTRUCTION	8-23-92
3	4-30-93	AS-BUILT	4-30-93
4	11-22-93	AS-BUILT REVISION	11-22-93
5	3-4-99	REV. #7895407	3-4-99
LINK 1302B		DRAWN: JPP/AD	
DWG 1302B-05C			